

INVENTORS: RAY R. WURZBACHER AND STEPHEN B. WALCHLI  
ASSIGNEE: INTERSIL AMERICAS INC.  
ATTORNEY: RONALD EARL GRANT (#52,960)  
TITLE: SYSTEM AND METHOD FOR DECAPSULATING AN  
ENCAPSULATED OBJECT

## CLAIMS

What is claimed is:

1. A system for the removal of a selected area of encapsulation material from an encapsulated object comprising:

a gas delivery tube connected to a pressurized gas source for delivering a flow of gas through an outlet thereof;  
a means for heating the gas to a selected temperature range;  
and

a means for directing the flow of heated gas onto a deposit of an encapsulant-removing agent, deposited on the surface of said encapsulated object, to sufficiently heat the encapsulant-removing agent causing the so-heated encapsulant-removing agent to remove at least a portion of the encapsulating material in contact with the so-heated encapsulant-removing agent.

2. The system of claim 1, wherein the encapsulant-removing agent is selected from solvents that will remove the encapsulating material when heated.

3. The system of claim 1, wherein the encapsulant-removing agent is selected from a group of acids that will remove the encapsulating material when heated.

4. The system of claim 2, wherein the encapsulant-removing agent is selected from a group of acids including nitric acid or sulfuric acid.

INVENTORS: RAY R. WURZBACHER AND STEPHEN B. WALCHLI  
ASSIGNEE: INTERSIL AMERICAS INC.  
ATTORNEY: RONALD EARL GRANT (#52,960)  
TITLE: SYSTEM AND METHOD FOR DECAPSULATING AN  
ENCAPSULATED OBJECT

5. The system of claim 1, wherein the gas is a substantially insert gas.
6. The system of claim 1, wherein the gas is nitrogen or argon or a mixture thereof.
7. The system of claim 1, wherein the gas is substantially moisture-free.
8. The system of claim 1, wherein the removing agent is deposited so as to form a substantially hemispheric or hemispheric-like formation on the surface of the encapsulated object.
9. The system of claim 8, wherein the removing agent is deposited by placing one or more drops or droplets on the surface of the encapsulated object to form the substantially hemispheric or hemispheric-like formation.
10. The system of claim 9, wherein the flow of heated gas is sufficient to form a depression or depression-like concavity in the said formation.
11. The system of claim 10, wherein the flow of heated gas is sufficient to form a depression or depression-like concavity in the said formation and insufficient to cause the removing agent to migrate from its initially deposited position on the surface of the encapsulated object.
12. The system of claim 11, wherein the removing agent is an acid selected from a group of acids including nitric acid or sulfuric acid.

INVENTORS: RAY R. WURZBACHER AND STEPHEN B. WALCHLI  
ASSIGNEE: INTERSIL AMERICAS INC.  
ATTORNEY: RONALD EARL GRANT (#52,960)  
TITLE: SYSTEM AND METHOD FOR DECAPSULATING AN  
ENCAPSULATED OBJECT

13. The system of claim 1, further comprising a temperature sensor for sensing the temperature of the heated gas.
14. The system of claim 13, further comprising a means for controlling the temperature of the heated gas.
15. The system of claim 14, wherein the temperature of the heated gas is controlled between approximately 100 and 300 degrees Celsius.
16. The system of claim 1, further comprising a flow controller for controlling the flow rate of the heated gas.
17. An encapsulation removal method for removing a portion of the material encapsulating an encapsulated object comprising the steps of:
  - depositing an encapsulant-removing agent on the surface of an encapsulated object;
  - subjecting the deposited acid to a flow of a heated gas sufficient to heat the deposited removing agent to cause the so-heated removing agent to remove at least a portion of the encapsulating material in contact with the so-heated removing agent.
18. The method of claim 17, wherein the encapsulant-removing agent is selected from solvents that will remove the encapsulating material when heated.
19. The method of claim 17, wherein the encapsulant-removing agent is selected from a group of acids that will remove the encapsulating material when heated.

INVENTORS: RAY R. WURZBACHER AND STEPHEN B. WALCHLI  
ASSIGNEE: INTERSIL AMERICAS INC.  
ATTORNEY: RONALD EARL GRANT (#52,960)  
TITLE: SYSTEM AND METHOD FOR DECAPSULATING AN  
ENCAPSULATED OBJECT

20. The method of claim 18, wherein the acid is selected from a group of acids including nitric acid or sulfuric acid.
21. The method of claim 17, wherein the gas is a substantially inert gas.
22. The method of claim 17, wherein the gas is nitrogen or argon or a mixture thereof.
22. The method of claim 17, wherein the gas is substantially moisture-free.
22. The method of claim 17, wherein the removing agent is deposited so as to form a substantially hemispheric or hemispheric-like formation on the surface of the encapsulated object.
23. The method of claim 22, wherein the removing agent is deposited by placing one or more drops or droplets on the surface of the encapsulated object to form the substantially hemispheric or hemispheric-like formation.
24. The method of claim 22, wherein the flow of heated gas is sufficient to form a depression or depression-like indentation in the said formation.
25. The method of claim 24, wherein the flow of heated gas is sufficient to form a depression or depression-like concavity in the said formation and insufficient to cause the removing agent to migrate from its initially deposited position on the surface of the encapsulated object.

INVENTORS: RAY R. WURZBACHER AND STEPHEN B. WALCHLI  
ASSIGNEE: INTERSIL AMERICAS INC.  
ATTORNEY: RONALD EARL GRANT (#52,960)  
TITLE: SYSTEM AND METHOD FOR DECAPSULATING AN  
ENCAPSULATED OBJECT

26. The method of claim 25, wherein the removing agent is an acid selected from a group of acids including nitric acid or sulfuric acid.

27. The method of claim 17, further comprising a temperature sensor for sensing the temperature of the heated gas.

28. The method of claim 27, further comprising a means for controlling the temperature of the heated gas.

29. The method of claim 28, wherein the temperature of the heated gas is controlled between approximately 100 and 300 degrees Celsius.

30. The method of claim 17, further comprising a flow controller for controlling the flow rate of the heated gas.